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AREA OF PRACTICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,743	11/09/2001	Shunpei Yamazaki	740756-2378	6006

222/04 7390 04/17/2003

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EXAMINER

SIMKOVIC, VIKTOR

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,743

Applicant(s)

YAMAZAKI ET AL.

Examiner

Viktor Simkovic

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-109 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-109 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

Applicant is hereby requested to provide a notice of related applications to ensure no duplicate claims are present in any co-pending applications.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chae in view of Yoon. Chae teaches a method of manufacturing a semiconductor substrate comprising the steps of:

forming an insulating film over a substrate;

forming a semiconductor film on the insulating film successively without exposing the insulating film to air;

irradiating the semiconductor film with a continuous wave laser beam to crystallize the semiconductor film.

Please note that while Chae does not specifically state that the film is not exposed to air, this is conventional in the art, as the deposition of thin films occurs in a deposition chamber under a controlled atmosphere. And while Chae teaches a rectangular irradiation area, the examiner maintains that the shape of the irradiation area is a

processing parameter that is in general an unpatentable modification. The examiner holds this position because a) the shape of the irradiation area does not affect the crystallization of the film in any obvious way and b) the optimum shape of the irradiation area could easily be determined by routine experimentation. Such a change in a parameter would be an unpatentable modification. *In re Aller* 105 USPQ 233, 255 (CCPA 1955); *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Imscher* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945). If the applicant believes that the use of an oval irradiation shape with an aspect ratio of 10 or more yields new and unexpected results, he is invited to point this out. Finally, Chae fails to teach the use of a 2nd, 3rd, or 4th harmonic of a CW laser, or that such a laser source contain Nd. This is taught by Yoon in column 5, lines 3-20. It would have been obvious to one of ordinary skill in the art at the time of the invention to use these wavelengths, for as Yoshida et al. teach, these harmonics are in the UV region, and thus more suited for the crystallization of silicon. With regard to the claims that teach the formation of a source, drain, LDD, and channel region, and those that teach that the gate partially overlap the LDD region, these are all conventional steps well known in the art at the time of the invention and official notice is taken. Some of the independent claims irradiate the semiconductor layer before patterning, some after patterning. Such a transposition of steps was held not to be patentable. *Ex parte Rubin* 128 USPQ 440 (PTO BdPatApp 1959). With regard to the dependent claims, Chae teaches depositing an amorphous film, and Yoshida et al. teach using a YAG laser, and

Art Unit: 2812

thus a wavelength of 532 nm (the 2nd harmonic). With regard to an aspect ratio of 100 or 1000 for the irradiation area, see the comment above.

Conclusion

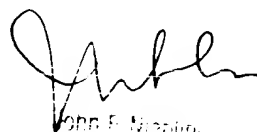
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant's attention is drawn to U.S. Pat. No. 6,160,269, which, although having the same assignee, has different inventors. This reference also teaches using the harmonics of a YAG laser to crystallize a film.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viktor Simkovic whose telephone number is 703-308-6170. The examiner can normally be reached on Mon - Fri, 9:00 - 6:00, except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.


Viktor Simkovic
April 15, 2003


John F. Niebling
Supervisory Examiner
Technical Support